FEDERAL AID
ANNUAL RESEARCH PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

PROJECT TITLE: Landscape-scale wolverine distribution and habitat use in Interior Alaska: Identification of key habitat parameters

PRINCIPAL INVESTIGATOR: Craig Gardner

COOPERATORS: Jim Lawler, National Park Service

FEDERAL AID GRANT PROGRAM: Wildlife Restoration

GRANT AND SEGMENT NR: W-33-2

PROJECT NR: 7.21

WORK LOCATION: Interior Alaska bordered on the west by McGrath, on the north by the Brooks Range, on the east by the Yukon/Alaska border and on the south by the Alaska Range and Wrangell Mountains.

STATE: Alaska

PERIOD: 1 July 2003–30 June 2004

I. PROGRESS ON PROJECT OBJECTIVES SINCE PROJECT INCEPTION

OBJECTIVE 1: To determine on a landscape scale wolverine distribution and habitat parameters in interior Alaska and develop a habitat model to help identify which habitat variables are most correlated with wolverine presence.

During February 16–23, 2004 we flew surveys along 3,712 km of transect lines in interior Alaska. . We observed wolverine tracks in 57% of 108 hexagon sample units along those transect lines. We resurveyed 7 sample units to begin evaluating sightability and detected new wolverine tracks in 3 of the sample units. We structured the data to produce coarse scale wolverine distribution maps and to use in predictive models. We began preliminary analyzes to correlate wolverine presence to the presence of wolves, ungulate prey species, other furbearers, gallinaceous birds, and human use. Results will be used to determine the sampling design for the second year.

II. SUMMARY OF WORK COMPLETED ON JOBS IDENTIFIED IN ANNUAL PLAN THIS PERIOD

JOB 1: Conduct a literature review on wolverine ecology and research methodology

I conducted a literature review of wolverine ecology including references on habitat use, movements, reproductive behavior, food habits, stable isotope methodology, statistical sampling, and modeling techniques

JOB 2: Prepare a GIS study area map displaying the 1,000 km^2 hexagon sample units and highlight sample units to be surveyed.

We subdivided the 454,300 km^2 (175,405 mi^2) study area into 333 1,000 km^2 hexagons. We excluded hexagons not fully included within the study area boundary or located in areas above 1830 m elevation. Using systematic sampling, we choose 258 hexagons to survey. Thirty-eight sample units were also systematically chosen to be sampled multiple times during the 2 year study to evaluate detection rate. A transect line through the center of the hexagon comprised the sampling unit. The direction of the transect line was determined to maximize sampling efficiency.

JOB 3: Conduct aerial track surveys during January and February, prior to wolverine denning season. Complete at least 50% of the sample units during the first year.

We conducted aerial track surveys during 16-23 February completing 115 sample units (44.6% of the selected sample units). In each selected hexagon, a transect approximately 32 km long was searched by a pilot/observer team experienced in recognizing tracks of wolverines and other species. The presence of wolverine and wolf tracks, the general abundance of ungulates, furbearers, hares, and gallinaceous birds, and the type of human use was determined by presence of tracks or actual sightings. Topography and snow cover were also described. Primary vegetation types were noted but most of the vegetation data has come from Landsat TM imagery (30 m pixel) produced by Ducks Unlimited. We did not complete the desired number of sample units due to aircraft scheduling conflicts with other projects.. ADF&G and commercial aircraft were used to fly the survey. National Park Service paid all of the commercial aircraft charter costs.

JOB 4: Construct a multiple logistic regression model to determine which landscape habitat variables correlate best with wolverine presence. This will be followed by forward stepwise Generalized Additive Modeling to determine the best fit to the data.

We analyzed and structured the data for modeling. We plan to complete the models by December 2004.

JOB 5: Write annual progress reports, final report, and manuscripts.

This was the first year of the project. This report summarizes results to date

III. ADDITIONAL FEDERAL AID-FUNDED WORK NOT DESCRIBED ABOVE THAT WAS ACCOMPLISHED ON THIS PROJECT DURING THIS SEGMENT PERIOD

IV. PUBLICATIONS

V. RECOMMENDATIONS FOR THIS PROJECT

Reducing the size of the hexagons may improve the ability to detect correlations between the presence of prey or predator species, topographical features, human use, and vegetation to wolverine distribution. We will develop models to help test this idea before our next field season.

VI. APPENDIX

VII. PROJECT COSTS FOR THIS SEGMENT PERIOD

FEDERAL AID SHARE $12,377 STATE SHARE $4,026.00 = TOTAL $16,503.00

VIII. PREPARED BY: APPROVED BY:

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SUBMITTED BY:

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                                       APPROVAL DATE: _____